

Great Lakes Navigation

O&M Five Year Development Plan

- ✓ Annual Dredging & Removal of the Dredging Backlog
- ✓ Dredged Material Disposal Facilities
- ✓ Breakwaters



Salty grounded at Menominee Harbor (MI/WI)
cross-ways in the navigation channel (April 05)



Agenda



1. Background – Current Situation
2. Maintenance Dredging – Great Lakes System Needs
 - Annual Requirements
 - Backlog Removal (FY09-FY13)
3. Dredged Material Disposal Facilities / Dredged Material Management Plans
4. Breakwaters
 - Current Condition
 - O&M Plan
5. Summary



Current Situation

Great Lakes Navigation



1. O&M Maintenance on the Great Lakes is under-funded:

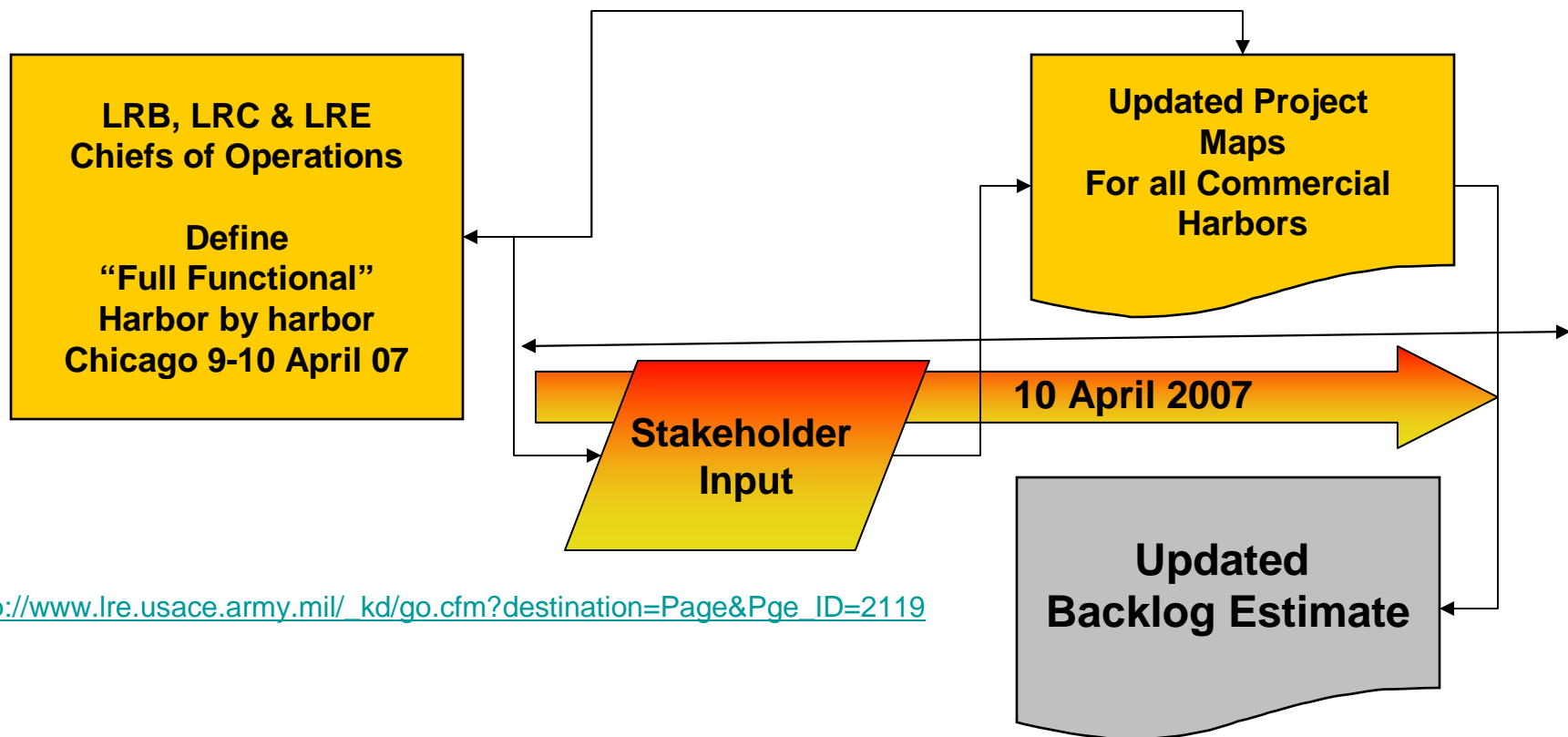
- Large Dredging Backlog at Commercial Harbors
- At current funding levels the backlog will continue to grow
- Navigation Structure Failures (e.g. Petoskey) are beginning.
- System-wide regular reinvestment in breakwater must begin
- Several CDFs and DMMPs are beginning / will begin soon

2. This plan does not address recreational harbors, a separate but related issue.

Fully Functional Harbor

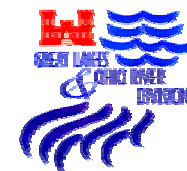
Great Lakes Navigation

Definition: A Fully Functional Commercial Harbor is maintained to authorized depth and at sufficient widths throughout the harbor so that navigation is not impeded under normal conditions. Generally this includes two-way traffic.

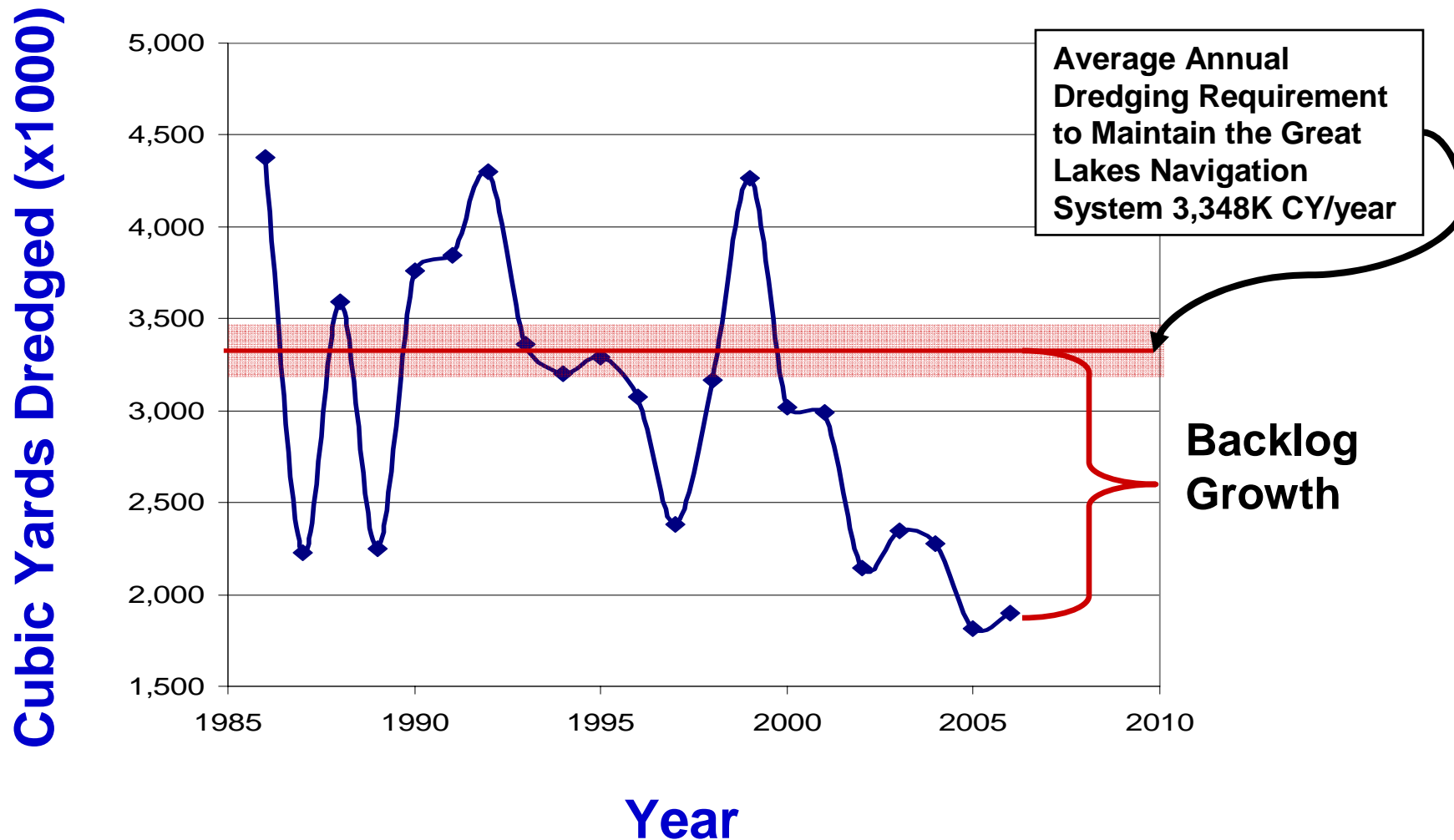


http://www.lre.usace.army.mil/kd/go.cfm?destination=Page&Pge_ID=2119

Great Lakes Dredging



Annual Great Lakes Dredging 1986-2006



Annual Maintenance Dredging

Great Lakes Navigation

Annual Maintenance Dredging Requirements for Great Lakes Commercial Harbors (to maintain the system)

Great Lake	Annual Requirement ¹ (x1000)	Required Funding
Superior	252 cY	<p>System wide average – \$12 per cubic yard</p> <p>Annual Need: \$40,176K</p> <p>Actual costs are site specific and vary significantly based on multiple factors</p>
Michigan	898 cY	
Huron	232 cY	
Erie	1,650 cY	
Ontario	44 cY	
Connecting Channels	272 cY	
Total	3,348 cY	

- Based on a multi-year running average. Not all harbors are dredged annually
- \$12 per yard cost estimate is in current dollars

Maintenance Dredging

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Backlog Dredging Requirement to Remove the backlog from FY09-FY13.

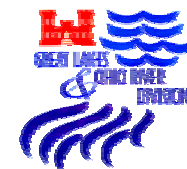
Fiscal Year	Backlog Requirement ¹ (x1000)	Required Funding ² (x1000)	Required Funding
FY 2009	4,320 cY	\$51,840	System wide average – \$12 per cubic yard Actual costs are site Specific and vary significantly throughout the system based on multiple factors
FY 2010	3,457 cY	\$41,484	
FY 2011	3,457 cY	\$41,484	
FY 2012	3,457 cY	\$41,484	
FY 2013	2,592 cY	\$31,104	
Total	17,283 cY	\$207,396	

- Includes all Great Lakes commercial harbors and connecting channels
- \$12 per yard cost estimate is in current dollars



Dredged Material Disposal Priorities

Great Lakes Navigation



System DMMP/CDF
needs through FY13



**Priority CDF Construction &
DMMPs, (x1,000)**

Harbor	FY09	FY10	FY11	FY12	FY13
Calumet Harbor Interim CDF	\$260	\$2,900	\$2,400	-	-
Cleveland Harbor New CDF	\$400	\$500	\$60,000	\$60,000	\$60,000
Milwaukee Harbor CDF	\$3,425	\$575	-	-	-
Green Bay Harbor DMMP/CDF	\$175	\$2,750	\$6750	-	-
Renard Island Closure	\$950	\$900	\$750	-	-
Ashtabula Harbor DMMP	\$250	\$250	\$250	-	-
Lorain Harbor DMMP	\$200	-	-	-	-
Lorain Harbor New CDF	\$680	\$675	\$175	\$11,000	\$11,000
Indiana Harbor CDF	\$18,735	-	-	-	-

Breakwaters

Great Lakes Navigation



- 160+ miles of breakwaters on the Great Lakes
- Most built between 1860 and 1940
- Timber crib construction (typical)
- Low Lake water levels are accelerating deterioration

Breakwaters

Great Lakes Navigation

Funding requirement to adequately maintain breakwaters system-wide

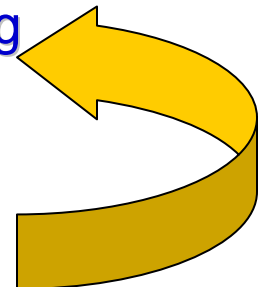
1. Aggressive Fund Preventative Maintenance

Preventative maintenance extends the life and investment of existing structures. Primary but not exclusively executed with Corps' Floating Plant.

2. Fund Breakwater Rehabilitation – Rebuilding

Rebuilds and Rehabilitates structures (or significant sections of structures) that require significant work. Mainly executed with contracted work projects. To maintain the system in the long term **\$5M to \$7M per year** must be re-invested annually.

***Significant Rehab / Rebuilding
has been largely absent from
our priorities for many years***



Summary

Great Lakes Navigation

FY	Annual Maintenance Dredging (x1000)	Backlog Removal Dredging (x1000)	DREDGING TOTAL (x1000)	DMDF & DMMP (\$1000)	Breakwater Prev. Maint. & Rehab. (x1000)	Sub Total (x1000)	Other Navigation O&M Costs
FY09	\$40,176	\$51,840	\$92,016	\$25,075	\$6,000	\$123,091	
FY10	\$40,176	\$41,484	\$81,660	\$8,550	\$6,000	\$96,210	
FY11	\$40,176	\$41,484	\$81,660	\$70,325	\$6,000	\$157,985	
FY12	\$40,176	\$41,484	\$81,660	\$71,000	\$6,000	\$158,660	
FY13	\$40,176	\$31,104	\$71,280	\$71,000	\$6,000	\$148,280	

- ✓ Restores the Great Lakes' Commercial Harbors to FULLY FUNCTIONAL Condition by FY2013 (removes the *Dredging Backlog*)
- ✓ Funds DMDFs and DMMPs required to support the systems dredging
- ✓ Begins a long-term reinvestment into the systems Breakwaters